Supplemental Digital Content #1

PICO Question: What are the best methods to evaluate the implementation of a new model of care within a hospital nursing environment

Table of Evidence

Citation	Evidence	Strengths and Limitations	Synthesis
Anthony, M.K. (2004). Shared governance models: The theory, practice and evidence. *Online Journal of Issues in Nursing*, 9(1).	Literature review	**Strengths:** Reviews 25 years of literature to determine how outcomes were measured. **Limitations:** Few empirical studies were reported within this literature review.	**Analysis/Synthesis:** Discusses positive outcomes for shared governance including: organizational outcomes, improved work environment, and nurse satisfaction. Assessed outcomes from 6 months to 60 months… suggesting that measuring outcomes related to a change in culture or model take 3-5 years to accurately measure affect. Suggests that autonomy is difficult to measure and achieve, for example, even if nurses have the ability to participate in decision making, does not mean they will chose to be involved. Organizational systems are encouraged to ask "how can nursing best respond?" Implementing shared governance as a model requires a paradigm shift.
Bamford-Wade, A., Moss, C. (2010). Transformational leadership and shared governance: an action study. *J. Nursing Management*, 18, 815-821.	Single descriptive study	**Strengths:** Outlines action plan (values precede change, capacity building for partnership, outcomes of transformational leadership). Discusses need for sharing of strategies and action processes utilized by nurse leaders.	**Analysis/Synthesis:** • Transformational leadership of CNO working within shared governance to engage principles of "partnership, equity, accountability and ownership" as well as active processes to advance effectiveness in nursing. • Four "I"s: idealized influence, inspirational motivation, intellectual stimulation, individual consideration continuous learning and professional respect among nurses. • Concludes that change can be sustained when transformational leadership is combined with shared governance and action process and recognized need for an environment of continuous learning.
Boumans, N. P., Berkhout, A. J., Vijgen, S. M., Nijhuis, F. J. & Vasse, R. M. (2008). The effects of integrated care on quality of work in nursing homes: a quasi-experiment. *International Journal of Nursing Studies,* 45(8), 1122-1136.	Single descriptive, qualitative study	**Strengths:** Provides summary of "integrated care"; includes examples of outcome measures. **Weaknesses:** Limited sample, pre-test/post-test design with nonequivalent groups; control and experimental groups were from different nursing homes with different organizational and environmental characteristics.	**Analysis/Synthesis:** Research Questions: • To what extent are the various characteristics of integrated care implemented • What are the effects of the implementation of integrated care on the quality of work aspects of care givers Results: Caregivers able to: • create more home-like atmosphere for their nursing home residents • use a demand-oriented working method • integrate the provision of care and services Intervention of quality of work: • Increase in social support by the supervisor • Increase in the degree of collaboration • Decrease in job demands

Burkman, K., Sellers, D., Rowder, C., Batchelleer, J. (2012). An integrated system's nursing shared governance mode: A system chief nursing officer's synergistic vehicle for leading a complex health care system. *Nursing Administration Quarterly*, 36(4), 353-361.	Case study	**Strengths:** Descriptive process of CNO creating and utilizing a shared governance structure.	**Analysis/Synthesis:** Shared governance promotes collaboration with shared decision making and accountability. CNO maximizes transformational leadership within a shared governance structure to improve workforce development, resource management, and best practice. Shared governance structure is designed to encourage collaborative goal accomplishment. Outlines step-by-step formation of shared governance structure, encourages empowerment by preserving individuals voice in decision making and described staff that took positions in shared governance becoming leaders in the hospital environment. Emphasizes shared commitment and communication.
Carabetta, M., Lombardo, K., Kline, N.E. (2013). Implementing primary care in the perianesthesia setting using a relationship-based care model. *J of Perianesthesia Nursing*, 28(1), 16-20.	Case study	**Strengths:** Discusses staff education prior to implementation of a primary care model.	**Analysis/Synthesis:** Discusses need for staff education prior to implementation of a primary care model in a perioperative setting. Outcome for change resulted in the patient feeling "cared for". Findings lead to incorporation of primary care model by other hospital departments.
Caramanica, L. (2004). Shared governance: Hartford hosital's experience. *Online Journal of Issues in Nursing*, 9(1).	Descriptive article, reflective	**Strengths:** Provides exemplar for evolution of shared governance.	**Analysis/Synthesis:** Describes principles of empowered organizations (partnership, accountability, equity and ownership), discusses barriers (invited participation, time for committee involvement, partnership model for care between nurse managers and staff nurses) and describes shared governance as a journey.

Chang, E., Hancock, K., Hickman, L., Glasson, J., & Davidson, P. (2007). Outcomes of acutely ill older hospitalized patients following implementation of tailored models of care: a repeated measures (pre- and post-intervention) design. *Int J Nurs Stud, 44*(7), 1079-1092.	Mixed method study	**Strengths:** Study providing an evaluation of model of care and outcome measures used.	**Analysis/Synthesis:** • Models of care developed by nurses using EBP action research strategy can enhance both satisfaction and health outcomes in older patients • Overview provided describing inconsistent results when comparing satisfaction with nursing care of younger versus older patients • Orem's self-care model uses a patient-centered approach and is often applied to nursing older patients • Action Research Process
Chen, C., Hsien-Jy,M., Miaofen, Y., Shu-Fen, L.,& & Li-Ching, L. (2007). Evaluation of a telephone call service for ambulatory surgery patients in Taiwan. *Journal of Nursing Care Quality,* 22(3), 286-288.	Single descriptive study	**Strengths:** Helpful in establishing telephone follow-up system for evaluation, applicable to outpatient/clinic setting.	**Analysis/Synthesis:** Outcomes reported improved continuum of care with identified nurse case manager.
Cropley, S. (2012). The relationship-based care model: Evaluation of the impact on patient satisfaction, length of stay, and readmission rates. *JONA*, 42(6) 333-339.	Single qualitative study	**Strengths:** Evaluation of a new model **Limitations:** Small rural hospital with regional and cultural differences**.** Monthly/versus yearly aggregates.	**Analysis/Synthesis:** Care model supports patient-centered, collaborative care environment, improved satisfaction and potential reimbursement.

Donahue, M.O., Piazza, .IM., Griffin, M.Q., Dykes, P.C.,& Fitzpatrick, J.J. (2008). The relationship between nurses' perceptions of empowerment and patient satisfaction. *Applied Nursing Research*, 21, 2-7.	Single qualitative study	**Strengths:** Large sample for one hospital. One random survey for nurses. N=259 (58%). Patient survey included 622 inpatient responses. 679 ambulatory surgery responses and 305 responses from ER patients.	**Analysis/Synthesis:** Results suggest relationship between nurse empowerment and patient satisfaction. Nurse perception of empowerment included: access to information, opportunity, support and resources. Factors believed to influence nurses perceptions; age, degree held, years in nursing, years at the study hospital, specialty area, position within the organization and certification status. Strategies that may promote nurse empowerment may include improving methods of communicating throughout the organization. Creating more opportunities for nurses at all levels of the organization to serve on hospital and system committees may build relationships within and outside organization. Patients, who were satisfied with the skill of nurses, were also very satisfied with their overall care. Satisfaction of family members and/or caregivers should also be considered.
Fernandez, R., Johnson, M., Thuy Tran, D., BPsycholgy, C. M. (2012). Models of care in nursing: a systematic review. *International Journal of EB Healthcare*, 10, 324-337.	Systematic review	**Strengths:** 14 Studies/2000 participants from 3000 studies, 2 reviewers independently assessed the eligibility of the studies for inclusion in the review with 100% concordance **Limitations:** Population is not congruent with NIH CC English only studies - Possible publication bias reported by authors -Small sample sizes -Definition of the models were "confusing and difficult to distinguish"	**Analysis/Synthesis:** • Setting: Acute care only…international • Review focused on studies which evaluated models of care which included nurses of varying skill level • Studies from the year 2000 • Models reviewed: Primary, team, and functional nursing; case management models • All RN staffing was excluded unless compared with a missed skill model • Team Nursing was favored as the model of care • Units with hybrid models showed major improvement in quality of pt care, but no difference in incidence of pressure areas or infection rates • No significant differences in nursing outcomes relating to role clarity, job satisfaction, and nurse absenteeism rates
Fogelsong, D. (1983). Evaluating conversion to primary nursing. *Nursing Management,* 14*(8), 25*-26. .	Single qualitative study	**Strengths:** Reviewed a process in place for a year to evaluate impact on quality of patient care as perceived by four groups **Limitations:** 25 year old study**,** no baseline data obtained, reflective of one institution. Retrospective post analysis and may not be easily translated to other institutions.	**Analysis/Synthesis:** Most important primary nursing activities identified in descending order: 1. Collaborating with other disciplines and nurses who care for the patient + Lack of time to develop care plans identified as major obstacle for poor communication between nursing staff 2. Developing care plans and conference 3. Planning discharge arrangements 4. Teaching patients and families 5. Providing continuity of care All patients sampled with one exception appreciated primary nurse The six physicians polled felt primary nursing improved continuity of care Unit secretaries felt primary nurse well informed but that the other nurses were not

			willing to accept information on someone else's primary patient.
Glasson, J., Chang, E., Chenoweth, L., Hancock, K., Hall, T., Hill-Murray, F., et al. (2006). Evaluation of a model of nursing care for older patients using participatory action research in an acute medical ward. *Journal of Clinical Nursing, 15* (5), 588-598.	Mixed method study	**Strengths:** Article discusses study evaluating the implementation and evaluation of model of care. **Weaknesses:** Limited sample, model of care evaluated by only one acute medical ward.	**Analysis/Synthesis:** Research Questions: • Is the implementation of a MOC tailored to the nursing needs of older patients effective in enhancing outcomes such as functional ADLs and medication knowledge and management? • Were older patients who were admitted during model implement more satisfied with the nursing care they received than pre-model patients? • What are some of the key concepts relating to nursing care that emerged as a result of action research processes during the implementation of a MOC for older patients? The new model of care, based on Orem's self-care model, resulted in improved health care outcomes for patient and the provision of patient-centered care.
Kinnaird L, Dingman S. Outcomes Measurement. In: Koloroutis, M, ed. Relationship-Based Care: A Model for Transforming Practice . Minneapolis, MN: Creative Healthcare Management; 2004:215-248.	Book chapter	**Strengths:** Provides detailed outline for evaluating a care model.	**Analysis/Synthesis:** Provides formula I_2E_2 (inspiring leaders and staff, creating infrastructure, educating all involved and evaluating evidence) for the development of an outcome measurement system. Provides question for guidance: what are we trying to achieve? Once the outcome has been determined, develop indicators (structure, process and outcome) that will measure developmental process. Utilize method to measure and record data, the authors suggest Generic Outcomes Grid with guides (indicators, definition, method, source, report format, numerator/denominator, validity/reliability, target and celebration). The authors suggest that unit's measure against themselves, or a like unit. Continual education and communication at all levels is essential for success, and don't forget to celebrate the success!
Newman, K.P. (2011). Transforming organizational culture through nursing shared governance. *Nurs Clin N Am*, 48:45-58.	Descriptive article	**Strengths:** Provides exemplars of positive outcomes (falls reduction, patient education). Describes establishment of shared governance and provides information regarding education and discussion with staff.	**Analysis/Synthesis:** Exemplars provided: transformation leadership and empowerment of staff, utilized Porter O'Grady model, accountability and role expectations, and ownership of staff in decisions that will affect nursing. Provided outcomes; NDNQI showed improvement in RN satisfaction and employee engagement survey showed improved scores.
Porter-O'Grady, T. (2004). Overview: Shared governance: Is it a model for nurses to gain control over their practice? *Online Journal of Issues in Nursing*, 9(1).	Expert opinion	**Strengths:** Brief overview 25 years of shared governance.	**Analysis/Synthesis:** Discussion regarding need for longitudinal research regarding; cost-benefit impact, value of shared governance and patient outcomes. Shared governance offers nurses the opportunity to own their practice and continue to advance collaboratively. Evidence of a maturity in the profession is showed in the shared governance models.

Rapkin, B., Weiss, E., Chhabra, R., Rynker, L., Shilpa, P., Carness, J., et al. (2008). Beyond satisfaction: using the Dynamics of Care assessment to better understand patients' experiences in care. *Health and Quality of Life Outcomes, 6(20), 1-20.*	Descriptive article	**Strengths:** Provides information about measuring patient satisfaction utilizing narrative (or detailed patient accounts of what went well and what did not). Captures patient satisfaction across the care continuum. **Weaknesses:** Measured patient satisfaction in relation to episodes of care, instead of one in-patient stay or one clinic visit.	**Analysis/Synthesis:** Discusses the benefits and limitations of the "*Dynamics of Care*" assessment" used in a longitudinal study to evaluate a comprehensive care model created for people with HIV and their children. Describes thedevelopment of ways to collect quality information for entire episodes of care, as opposed to one visit or hospitalization. Emphasizes the need for increased attention to narrative methods for collecting information. Satisfaction alone does not capture the degree of resolution of care.
Robinson, J.H, , Callister, L.C, , Berry, J.A,,& Dearing, K.A. (2008). Patient-centered care and adherence: definitions and applications to improve outcomes. *Journal of the American Academy of Nurse Practitioners, 20*, 600-607.	Literature Review	**Strengths** Reviewed Cinahl, PubMed, Academic Search Premier, Cochrane Library databases. **Limitations** Survey has variations on perception.	**Analysis/Synthesis:** Provided definition of Patient-centered care (PCC) "a partnership among practitioners, patients and their families (when appropriate) to ensure that decisions respect patient's wants, needs, and preferences and that patients have the education and support that they need to make decisions and participate in their own care". Fundamental characteristics of PCC; patient involvement in care and individualization of patient care. Effective PCC practices were related to communication, shared decision making and patient education. Additional study showed patients want; respectful treatment, competence, information to create a more patient-centered healthcare system. Discussed compliance vs. adherence Discussed importance of provider style and time spent with patient; assess by (open ended questions, paying attention to patient concerns and allowing patients time to express themselves). Communication is essential in establishing a high quality patient-provider relationship, is a key factor in adherence. EBP and PCC must be integrated.
Specht, J., Bossen, A., Hall, G. R., Zimmerman, B., & Russell, J. (2009). The effects of a dementia nurse care manager on improving caregiver outcomes. *American Journal of Alzheimers Disease & Other Dementias,* 24 (3), 193-207.	Descriptive article	**Strengths:** 3 years of data collection **Weaknesses:** Follow up evaluations not completed in a timely fashion	**Analysis/Synthesis:** Descriptive implementation and evaluation of a nurse care management model of service delivery for persons with dementia and/or their family caregiver. Describes the Nurse Case Manager (NCM) role as well as methods used to evaluate the NCM role. Caregivers assisted by the NCM were more likely to show improvement in stress levels, endurance potential and well-being. Continued support and training concentrated on the necessities of the caregiver and the patient promote positive outcomes.

Seek, A.J., & Hogel, W.P. (2007) Modeling a better way: navigating the healthcare system for patients with lung cancer. *Clinical Journal of Oncology Nursing*. *11 (1),* 81-85.	Expert opinion	**Strengths:** Use of EBP	**Analysis/Synthesis:** Describes characteristics and features of multidiscipline team members. Coordinator must be: (knowledgeable about aspects of care management and the healthcare system, work with the multidiscipline members, familiar with diagnostic tests, compassionate and willing to listen to patient concerns, alleviate expressed fears, minimize frustrations and attempt to support emotional needs). Nurse navigator must be patient advocate who promotes patient empowerment and included patients in decisions throughout treatment process. **Advocacy is a central tenant of nursing practice.**
Shebini, N, Aggarwal , R. & Ghandi, A. (2008). Improving Patient Awareness of Named Nursing Through Audit. *Nursing Times*, 104(21), 30-31.	Case Study	**Strengths:** Simple survey	**Analysis/Synthesis:** Stressed importance of nurse identification asked question: "Do you know who is your named nurse? Concluded that the best outcome occurred when the nurse's name was known by the patient.
Stanley, J. M., Hoiting, T., Burton, D., Harris, J., & Norman, L. (2007). Implementing innovation through education-practice partnerships. *Nurs Outlook, 5* (2), 67-73.	Descriptive study	**Strengths:** AACN responding to need to improve health care developed a new nurse master's prepared role with certification, the CNL in collaboration with education and practice partners. Developed role curriculum and immersion program for masters as well as certification exam.	**Analysis/Synthesis:** Important aspect of introducing new role was support of the CNO, in championing the role and providing education, so staff understand the role and buy in to implementation. Clinical case examples were identified and focus groups discussed how a CNL could be utilized prior to introducing role.
Stanley, J., Gannon, J,, Gabuat , J., Hartanft, S,, Adams, M,N,, Mayes, C,, Shouse, G.M,, Edwards, B.A,,& Burch, D, (2008). The clinical nurse leader: a catalyst for improving quality and safety; *Journal of Nursing Management,* July; 16 (5):614-22.	Case reports using a naturalistic, summative evaluation, pre-post and qualitative measures	**Strengths:** Articulated description of implemented model, CNL: defined master's curriculum, AACN certification. **Limitations:** Most of the positive findings were subjective, changes in outcome data when evaluated were mixed, however the trend was positive toward improving patient outcomes and cost containment.	**Analysis/Synthesis:** Used national nurse sensitive indicators/patient safety goals data to assess quality of nursing care on the 3 units implementing Clinical Nurse Leader (CNL). Measured innovation with qualitative data from CNL journals. Set goals for improved communication, increased evidence based practice and provided mentoring and guidance for less experienced nurses, providing continuity for patient's care experience, assuring cost containment. Information gathered by Assessing journal entries giving case examples of accomplishments CNL focus on the novice nurse and building skills/knowledge CNLs are viewed as clinical experts, encourage learning and EBP.
Thomas, P. L. (2008).	Casual-	**Strengths:**	**Analysis/Synthesis:**

Case manager role definitions: do they make an organizational impact? *Professional Case Management, 13* (2), 61-71.	comparative retrospective study	Comparison of traditional case manager role (focus on D/C planning/utilization review) to an expanded role (adding chart review, electronic documentation, communication with team members) -Sample size 39,017 in-patients	Study Questions: • What is the relationship between a specific structure, role definition, and role functions in care management delivery that leads to organizational success? • What is the relationship between the application of utilization management principles, defined nurse case manager role responsibilities, electronic documentation, and length of stay (LOS) by clinical unit? Two case management delivery models examined. This study discusses professional nurses working in collaborative environments with clearly defined role expectations can have an impact on organizational LOS.
Tonges, M. (2011). Translating Caring Theory Into Practice. *JONA*, 41(9), 374-381.	Descriptive article	**Strengths:** PI project over 6 year period**,** phases of project well delineated provides connection between Carolina Care and Swanson Caring Theory.	**Analysis/Synthesis:** Describes operationalization of Swanson Caring Theory and positive change in practice and provides a step-by-step description.
Winkelman, C., Kelley, C., Savrin, C. (2012). Case histories in the education of advanced practice nurses. *Critical Care Nurse*, 32(4):e1-e18.	Descriptive article literature review	**Strengths**: Defines "case history" provides web references and exemplars from literature review. Provides rubric for student evaluation (response to case study). Provides questions to be utilized (self-reflection) post simulation.	**Analysis/Synthesis:** Demonstrates value for case histories as teaching method for active learning (cognitive, social, cultural knowledge, emotional knowledge and motor skills), student-centered learning and development of clinical reasoning. Discusses use of electronic and classroom setting. Outlines benefit of case histories in evaluative process demonstrating learning (describes/defines summative and formative evaluation). Provides discussion regarding use of intranet sources (podcasting, Wikis, blogs, discussion boards, and webinars) as well as evaluation and suggestions for self-reflective evaluation.
Winsett, R.P., Hauck, S. (2011). Implementing relationship-based care. *JONA* 41(6), 285-290.	Single descriptive study	**Strengths**: N=137 Nurses	**Analysis/Synthesis:** Relationship based care model explored. Initial survey question: what does nursing mean to you? led to highlights of CARING (connect with patient, ask the patient, respect the patient, interact with the patient, nurture and go the extra mile).

Supplemental Digital Content 2: Schema for evaluating the implementation of a new model of care within a clinical research environment

<table>
<tr><th>Data Sources</th><th>Findings</th><th>Applications and Strategies</th></tr>
<tr><td>Literature Search</td><td>Table of evidence (citation, level/type of evidence, strengths/limitations and analysis/synthesis, tools and stakeholder)</td><td rowspan="3">Evaluation Methods
• Case studies
• Survey questions (Likert scale and open-ended
Primary Stakeholders
• Clinical Research Nurse
Identified to evaluate first
• Research Participant
Evaluated by patient survey, might consider additional questions to current survey
• Physician/Medical team
Not currently evaluated, area targeted for future pursuit
Educational Strategies
• Knowledge assessment of key stakeholders
• Develop/provide education pre/post implementation
Data Collection Time points (capture changes/track progress)
• Pre Implementation
• Immediate Post Implementation (approx 1 month)
• Ongoing (approx 6 mo-yr intervals)</td></tr>
<tr><td>Case studies and unit specific information

Nominal group technique used to: identify tools and indicators</td><td>Related findings to stakeholder
Feedback from individual clinical work environment
Highlight common threads of CRN practice within the Model of Care</td></tr>
<tr><td>Clinical Center Resources

NDNQI (clinical data and staff survey)
Patient survey
Occurrence Reporting System
Clinical documentation
Patient Care Representative</td><td>Identified current data sources: extrapolated tools and indicators to be utilized for evaluation</td></tr>
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